NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

RESIDUE MANAGEMENT, SEASONAL

(Acre)

CODE 344

DEFINITION

Managing the amount, orientation, and distribution of crop and other plant residues on the soil surface during a specified period of the year, while planting annual crops on a clean-tilled seedbed, or when re-seeding biennial or perennial crops.

PURPOSES

- Reduce sheet and rill erosion.
- Reduce soil erosion from wind.
- Reduce off-site transport of sediment, nutrients or pesticides.
- Manage snow to increase plant available moisture.
- Provide food and escape cover for wildlife.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all cropland and other land where crops are grown.

Seasonal residue management includes managing residues of annual crops from harvest until the residue is:

- Buried by tillage for seedbed preparation
- Removed by grazing, or
- Mechanically removed

It also includes the management of residues from biennial or perennial crops from the time of seed harvest until regrowth begins the next season.

CRITERIA

General Criteria Applicable to All Purposes

Residue shall be uniformly distributed over the entire field.

Combines or similar harvesting machines shall be equipped with spreaders capable of redistributing residues over at least 80 percent of the working width of the header.

Residues shall not be burned unless burning is an accepted practice in an integrated pest management (IPM) program developed and recommended by the State Land Grant University.

Additional Criteria to Reduce Sheet and Rill Erosion and Erosion from Wind

The amount and orientation of residue needed to reduce erosion within the soil loss tolerance (T) or any other planned soil loss objective shall be determined using current approved erosion prediction technology.

Partial removal of residue by means such as baling, grazing, or other harvest methods shall be limited to retain the amount needed to meet the erosion reduction objective. The remaining residue shall be maintained on the surface through periods when erosion has the potential to occur, or until planting, whichever occurs first. Erosion prediction estimates shall account for the effects of other practices in the conservation management system.

Any tillage that occurs during the management period shall be limited to methods that maintain the planned cover conditions.

Additional Criteria to Reduce Off-site Transport of Sediment, Nutrients or Pesticides.

The amount and orientation of residue required to reduce off-site movement of agricultural chemicals during the specified period shall be determined using the appropriate assessment tool(s) [Windows Pesticide Screening Tool (WIN-PST), Phosphorus Index (PI), Leaching Index (LI), erosion prediction technologies, or other recognized tools] for the site conditions.

Additional Criteria to Manage Snow to Increase Plant-Available Moisture

Harvesting equipment shall be adjusted to leave standing stubble at least 6 inches tall. Stubble shall be maintained in a standing orientation over winter to trap and retain snow.

Any tillage that occurs during this period shall be limited to undercutting tools such as blades, sweeps or similar implements that minimize residue flattening or burial.

Loose residue may be removed providing that the remaining residue is left standing and the remaining residue coverage is adequate to control soil erosion.

Additional Criteria to Provide Food and Escape Cover for Wildlife

Tillage operations shall be delayed until the end of the management period to maintain the food and cover value of the residue.

Maintain standing stubble, flat residue and waste grain through the fall, winter and spring period until the last week in May. Residue will not be removed prior to this date unless it is determined by an on-site assessment that such removal will not adversely affect habitat values.

The amount of residue, height of stubble, and length of the management period will be adjusted to meet the habitat requirements for the identified species of interest or wildlife population. In absence of an identified species of concern requiring otherwise, maintain a six inch stubble height.

CONSIDERATIONS

Removal of plant residue by baling or grazing may have a negative impact on resources. These activities should not be performed without full evaluation of impacts on other resources.

Production of adequate amounts of crop residue necessary for the proper functioning of this practice can be enhanced by selection of high residue producing crops and crop varieties, by the use of cover crops, and by adjustment of plant populations and row spacing.

When planting in a low residue seedbed, completing tillage and planting in a single operation, or by performing primary tillage no more than three days before planting can minimize exposure to erosion; and in limited moisture areas, can conserve moisture for germination.

Seeding or performing tillage perpendicular to the prevailing wind erosion direction and leaving adequate random roughness will reduce erosion on exposed seed beds.

Leaving standing stubble taller than the six inch minimum will increase the amount of snow trapped. Variable height stubble patterns may be created to further increase snow storage.

Leaving one or two rows of unharvested crop standing at intervals across the field can enhance the value of residue for wildlife habitat. Unharvested crop rows have the greatest value when they are adjacent to other cover types, such as grassy or brushy areas or woodland.

PLANS AND SPECIFICATIONS

Specifications for establishment and operation of this practice shall be prepared for each field or treatment unit according to the Criteria described in this standard.

Specifications shall be recorded using approved job sheets, narrative statements in the conservation plan, or other acceptable methods.

Minimum residue amounts and the time that residues must be maintained on the soil surface will be specified.

The time periods when food and cover will be present for wildlife use will be noted.

The species benefited from the food and cover will be identified.

OPERATION AND MAINTENANCE

No operation and maintenance requirements have been identified for this practice.

REFERENCES

Alaska Wind Erosion Guide, 1998, Section 1, Alaska Field Office Technical Guide

Predicting Erosion by Water: A Guide To Conservation Planning with the Revised Universal Soil Loss Equation (RUSLE), 1997, USDA, Agriculture Research Service, Agriculture Handbook Number 703

Interpreting the Soil Conditioning Index: A Tool for Measuring Soil Organic Matter Trends. Soil Quality – Agronomy Technical Note # 16, April 2003, http://soils.usda.gov/sqi/